# MAMIYA/SEKOR 500TL and 1000TL

Similar models: DTL, MSX, DSX

Battery: 1 ea. S76

Fig. 1—top cover removed

Fig. 2—bottom cover removed

Fig. 3—top view, rewind side

Fig. 4—top view, pentaprism removed

Fig. 5—back view, speed-control mechanism

Fig. 6—top view, speed bridge removed

Fig. 7—top view, mirror box removed

Fig. 8—mirror box, wind side (charged)

Fig. 9—shutter assembly, released position

Fig. 10—new-style mirror box

Fig. 11—bottom view, MSX

ADJUSTMENT LOCATIONS:

| | |
|---|---|
| Hairspring (meter adjust) | A |
| Finder focus (4 screws) | B |
| 1/4 second (slow speeds) | C |
| Brake, first curtain | D |
| Retard-transmission lever | E |
| Travel time, second curtain | F |
| Travel time, first curtain | G |
| 1/500, 1/1000 | H* |
| 1/60, 1/125 | I** |
| High speeds | J** |

Note: Use eccentric J (closer to end of disengaging lever) only if eccentric bushing F will not bring in the top speed.

*loosen bridge screw and rotate eccentric bushing; use dimple on bushing as a reference

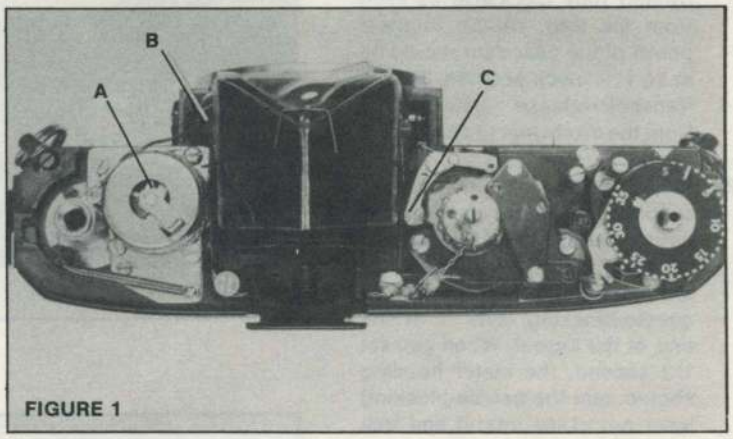

FIGURE 1

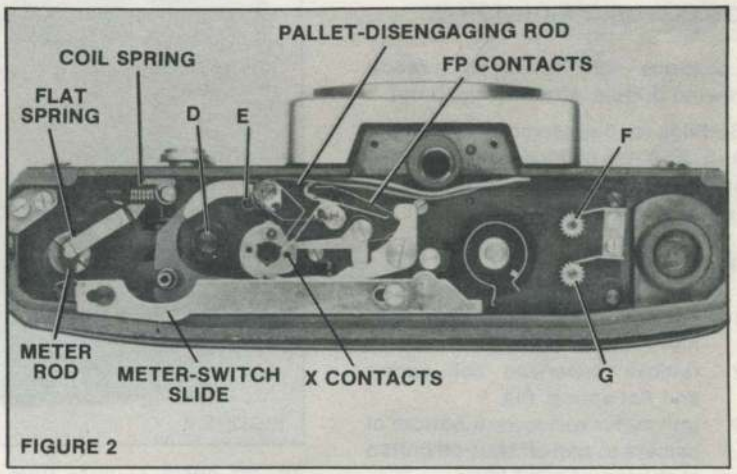

FIGURE 2

**pull disengaging lever to back of camera to reach eccentrics

ADJUSTMENT SEQUENCE:

1. curtain-travel times
2. 1/500 or 1/1000
3. 1/125 & 1/60
4. 1/4

ADJUSTMENT VALUES:

Curtain-travel times: 12 - 12.5ms (3mm distance)

Flange-focal distance: 45.5mm 0.03mm (flange to film-guide rails)

FP-sync delay: 7 - 15ms

Retard-transmission lever: The lever, Fig. 6, moves up during the cocking stroke to clear the second-curtain cam. During the release cycle, the lever catches the second-curtain cam to provide the slow speeds. Adjust threaded bushing E for proper action.

Contact gap, FP contacts: Adjust for a 0.5mm space gap between the contacts at the completion of the release cycle.

Contact gap, X contacts: Advance the wind lever until the curtain bars enter the aperture by 1mm. Now adjust the X contacts for a 0.5mm space gap.

TIMING POINTS:

1. Transport-release (idle) gear, Fig. 9. With the curtains in the released positions (curtain drum rotated fully clockwise as seen from the top), the tip (highest point) of the gear cam should be at an 11 o'clock position. Tilt the transport-release gear away from the drum gear to change the timing.
2. Meter. Set ASA 100 and 1 second. The cutout on the meter housing should be at the position shown in Fig. 3 with respect to the needle-blocking lever; the needle-blocking lever is at the end of the cutout. When you set 1/2 second, the meter housing should cam the needle-blocking lever out of the cutout and free the meter needle. To time, change the cemented position of the chain.

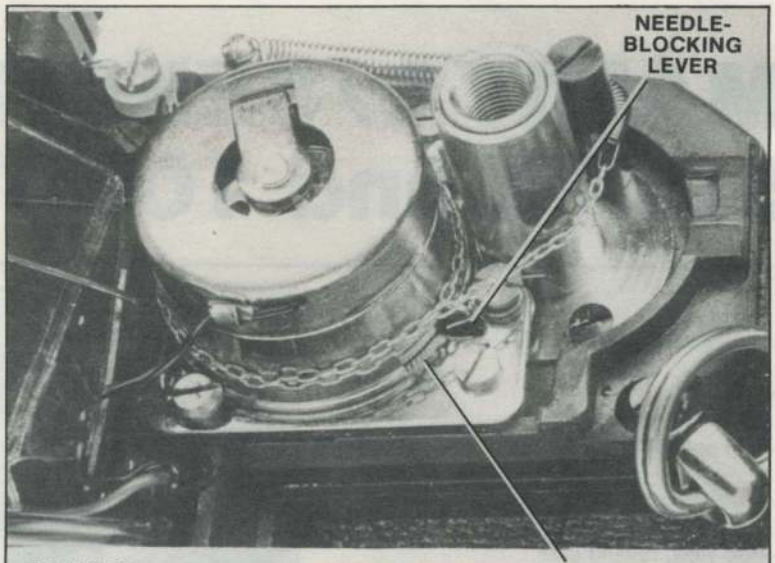

FIGURE 3

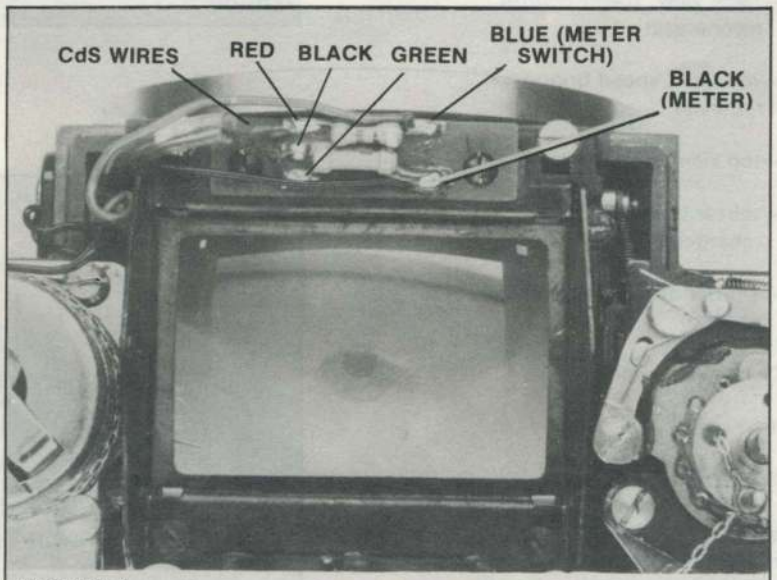

FIGURE 4

DISASSEMBLY HIGHLIGHTS:

Locations of left-hand threads: rewind button, wind-lever cap nut

Settings for disassembly: 1/4 second and ASA 80 to loosen speed-knob setscrew, bulb and ASA 800 to remove speed knob

Sequence:

1. bottom cover (unscrew left-hand rewind button)
2. remove meter-rod coil spring and flat spring, Fig. 2
3. pull meter rod toward bottom of camera to pop off shut-off button at the top of wind lever
4. top cover (loosen setscrew to unscrew left-hand wind-lever cap nut) — release button loose
5. front decorator cover (2 screws)
6. pentaprism (remove retaining spring) — mask above focusing screen loose
7. eyepiece frame (3 screws) and eyelens
8. unsolder black wire and blue wire from meter-terminal board, Fig. 4
9. disconnect and remove meter spring, Fig. 3
10. lift chain coupler from speed-knob shaft
11. remove 2 chain pulleys, corners of mirror box
12. remove 3 screws holding meter assembly (1 is post screw that hooks meter spring)

    Note: You can remove the meter housing from its base plate by taking out the three shoulder screws, Fig. 3. However, you can remove the meter housing and base plate as a complete assembly by leaving the shoulder screws in place.
13. lift out meter assembly (be careful to avoid damaging needle)
14. remove support plate above speed-selector detent (2 screws) — loose spacers under support plate
15. disconnect spring from second-curtain latch, Fig. 5
16. disconnect coil spring from counter-drive pawl, Fig. 5
17. remove screw holding speed-control bridge (countersunk screw that passes through adjustment bushing, Fig. 5)
18. pull pallet-cam follower, Fig. 6,

toward front of camera and lift off speed-control bridge — release rod, spring for second-curtain latch, and disengaging lever loose, Fig. 6

19. scribe position of mirror box with respect to body casting
20. remove 2 screws, top front of mirror box
21. lift mirror box up and out of body casting (move mirror-charge lever, Fig. 6, as necessary to free mirror box)

Note: It's possible to remove the mirror box without taking out the speed-control bridge. Remove the slow-speed cam follower and disconnect the coil spring from the charge lever on the mirror box, Fig. 8 (to prevent damage to the spring). Cock the shutter and set 1/500. Then take out the mirror-box screws and manipulate the mirror box up and out of the body casting.

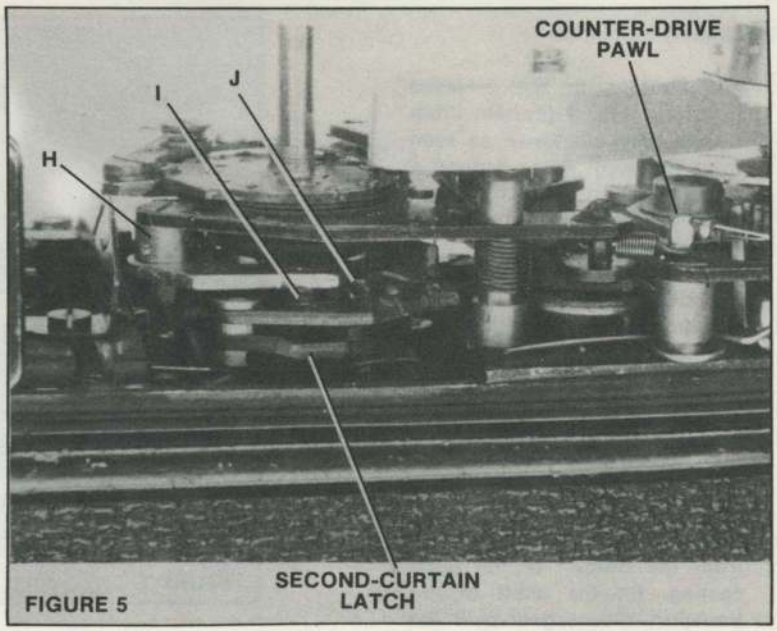

FIGURE 5

Reassembly highlights:

1. As you install the mirror box, make sure the first-curtain release link, Fig. 8, passes through the body-casting slot and sits to the front of the first-curtain latch, Fig. 2. Align the mirror box with your scribes before tightening the mirror-box screws. Incorrect mirror-box alignment may cause a failure of the mirror to remain in the charged position and/or incorrect viewfinder focus.
2. Replace the top cover at ASA 800 and bulb. As you seat the top cover, make sure the speed-knob hole passes over the pin on the chain coupler. Then rotate the speed knob counterclockwise until the "B" aligns with the index. Hold down the center of the speed knob and set ASA 80 and 1/4 second to tighten the setscrew.

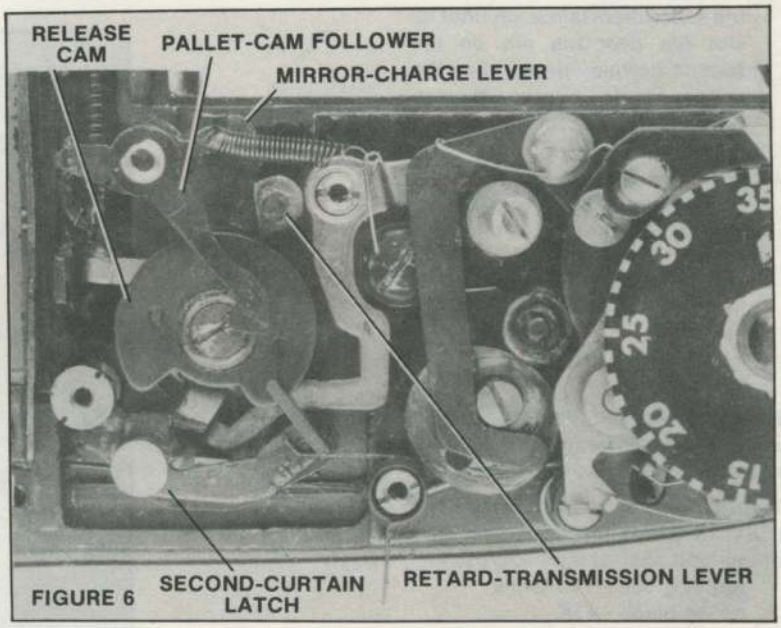

FIGURE 6

Sequence to remove shutter assembly:

1. disconnect spring and lift out second-curtain latch, Fig. 6 — spacer bushing loose
2. remove release cam (1 screw), Fig. 6
3. remove slow-speed governor (2 screws at bottom of camera)
4. remove diaphragm-closing link, Fig. 7 (2 screws and shoulder bushings — longer bushing and screw go to front of camera)
5. unsolder wires from sync contacts, Fig. 2
6. remove meter-switch slide, Fig. 2 (2 screws and shoulder bushings — longer bushing and screw go at wind-lever end)
7. release tension from curtain rollers
8. remove E-clip from bottom of pallet-disengaging rod, Fig. 2
9. remove 4 screws holding shutter assembly at bottom corners, Fig. 2 (1 is post screw that hooks meter-rod coil spring)
10. slide out shutter assembly toward bottom of body casting

Note: If you replace curtains, scribe the cemented positions of the old curtains on the curtain drum. The positions at which the curtains are cemented to the drum control the 1-bar overlap.

Reassembly highlights:

1. Set curtains in the released positions, Fig. 9 (curtain drum turned fully clockwise as seen from the top). Place around a turn of tension on each curtain. Set the timing of the transport-release gear so that the high point of its cam is at the 11 o'clock position, Fig. 9.
2. Advance the wind lever until the low point of the mirror-charge cam aligns with the roller at the end of the mirror-charge lever, Fig. 6. The mirror-charge cam then allows the other end of the mirror-charge lever to move fully toward the front of the camera.
3. Slide in the shutter assembly from the bottom of the body casting. Fit the shaft of the transport-release gear over the sprocket rod, and pass the upper drum pivot through the hole in the second-curtain latch. Rotate the second-curtain latch until its slot fits over the pin on the second-curtain drum. Fit the upper pivots of the tension rollers into the bearing holes in the body casting.
4. Replace the shutter-retaining screws and test by cocking the shutter. At the end of the wind stroke, the first-curtain latch should engage the second notch in the first-curtain cam, Fig. 2.

TROUBLESHOOTING:

Behavior without battery: needle remains at underexposure side of indicator on screen

Resistance of mirror CdS measured at EV 15 (leads disconnected, lens mount held against light source):

red to green — 90 ohms
red to black — 1K
black to green — 1K

Typical current draw (1.5V supplied): 0 - 20ma

Frequently repaired sections:

1. Mirror fails to rise or return due to broken springs on mirror box. The mirror-box springs have been improved to be less brittle. The revised springs have IWP numbers rather than DWP numbers. Fig. 8 shows the revised part numbers.

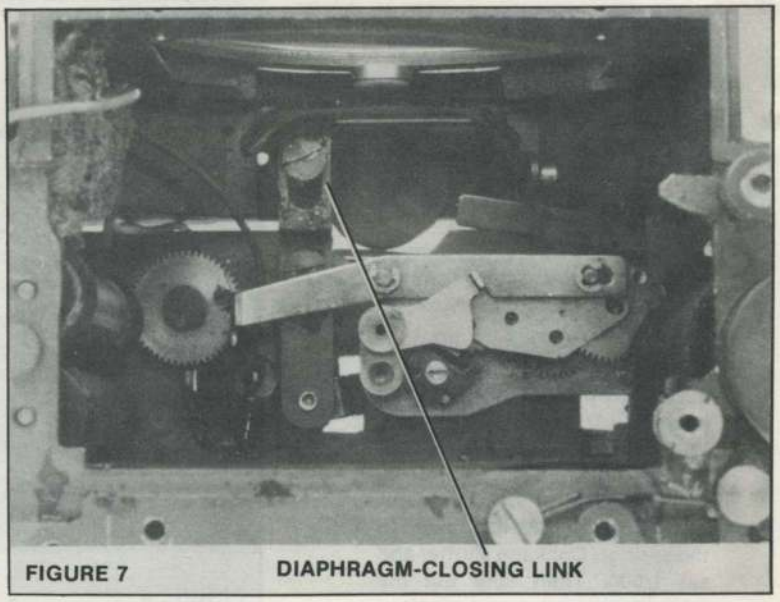


FIGURE 7

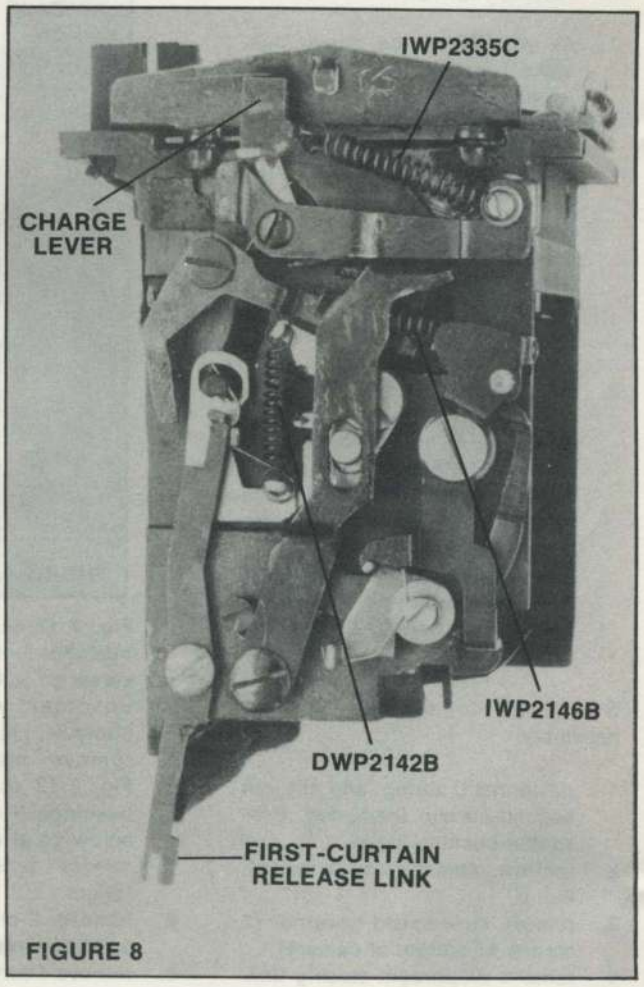


FIGURE 8

2. Mirror fails to latch in down position due to broken spring, mirror box out of position, or binding latch on mirror box.
3. Meter fails to turn on because of poor contact between meter-switch slide, Fig. 2, and ground contact on mirror box, or poor contact between switch button, Fig. 11, and ground.
4. Meter sluggish, inoperative, or inaccurate because of defective mirror photocell DWP2941-2. Slide out the mirror to replace the mirror photocell. You can get replacement mirror photocells through Cam Comp.

REVISED PARTS:

1. The mirror box has been revised. Fig. 10 shows the new style with the part numbers for the springs.
2. The meter switch-on system has been revised. In early models, Fig. 2, pushing the wind lever toward the camera body moves the meter-switch bar against the ground contact of the battery box. To return the wind lever to the storage position without turning on the meter, push the button at the top of the wind lever. In later models, the ground tab on the battery box connects to the switch button, Fig. 11. Pulling the wind lever to the stand-off position turns on the meter by allowing the switch button to drop down and make ground contact.
3. The meter-terminal board has been revised. Fig. 4 shows the early type. In the later type, the meter-terminal board sits at the rewind end of the camera.
4. The winding shaft has been revised. The threaded end of the old style (DWP1336K2A) is 4mm; the threaded end of the new style (TL1336K2B) is 5mm. The increase in diameter changes all of the parts that fit above the wind shaft, including the wind lever.

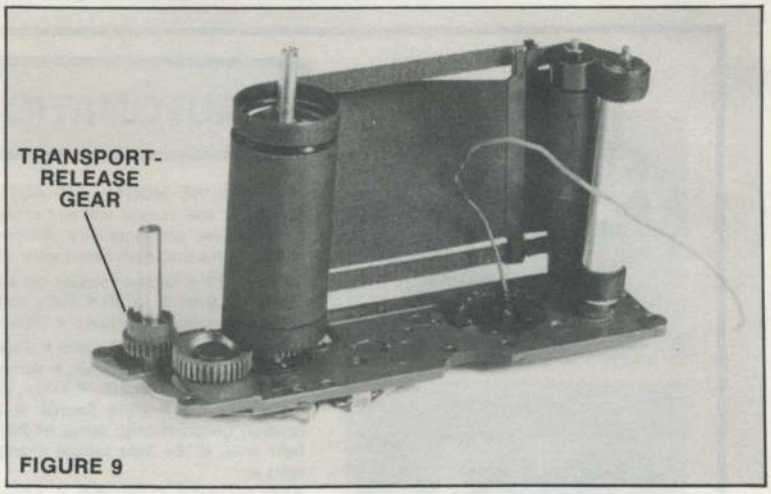

FIGURE 9

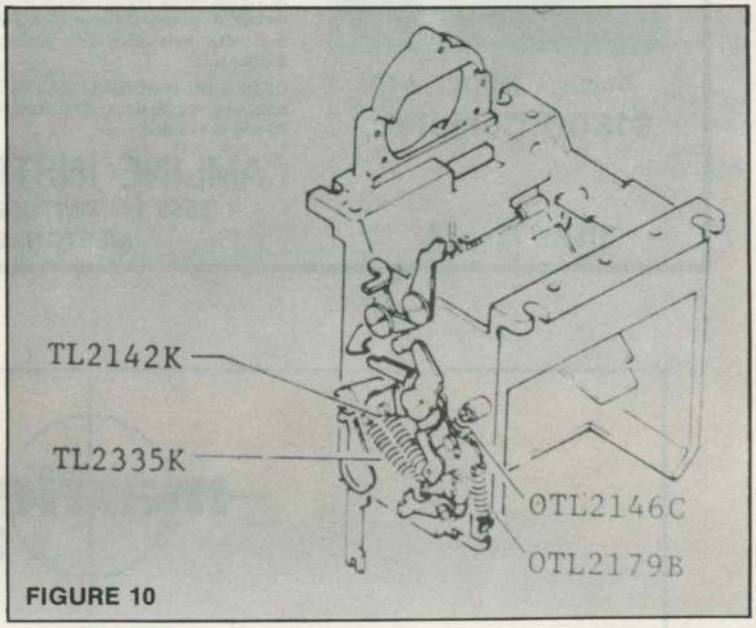

FIGURE 10

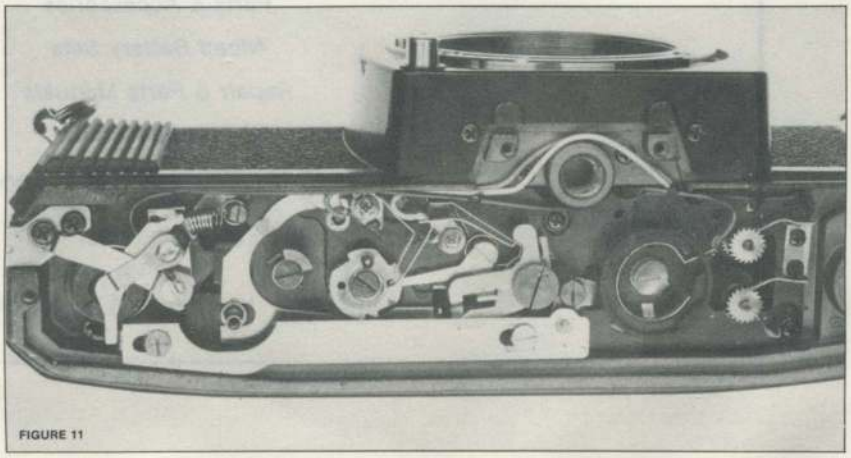
FIGURE 11

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# AUTO MAMIYA/ SEKOR 50mm

(standard lens for Mamiya SLR's with stopped-down metering)

Fig. 1—filter ring removed, front view

Fig. 2—focus ring removed

Fig. 3—helicoid timing

Adjustment locations:

| | |
|---|---|
| Focus-ring alignment | A |
| Diaphragm size | B |
| Focus (infinity stop) | C |

Disassembly sequence:

1. unscrew filter ring with name-plate ring
2. remove focus ring with clamping ring, Fig. 1 (4 screws)
3. unscrew front and back lens groups
4. remove lens barrel (3 screws)

   Note: Removing the lens barrel loses the diaphragm-opening adjustment, Fig. 1. You can first scribe the rotational position of the lens barrel, or you can reset the rotational position using a transmission test.
5. diaphragm-cover ring (3 set-screws, outer circumference of lens barrel)
6. diaphragm leaves

Sequence to disassemble helicoid:

1. remove depth-of-field ring (loosen 3 setscrews)
2. remove rear mount assembly (3 screws formerly covered by depth-of-field ring)
3. remove helical guides
4. remove focus-ring stop lug, Fig. 2
5. unscrew helical rings

Reassembly of helicoid:

1. Screw on the brass helical ring until the bottom edge of its stop tab, Fig. 3, is 5.8mm from the bottom edge of the fixed helical ring.
2. Replace the focus-ring stop lug positioned against the stop tab on the brass helical ring. If there aren't enough screw holes to position the focus-ring stop lug, change the starting thread of the brass helical ring.
3. Hold the brass helical ring against the focus-ring stop lug. Then screw in the aluminum inner helical ring until its bottom

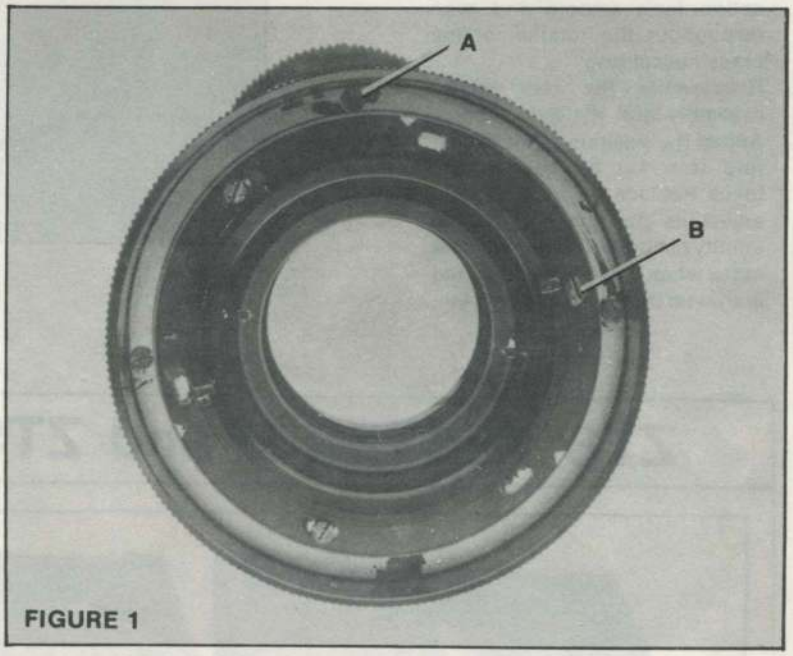


FIGURE 1

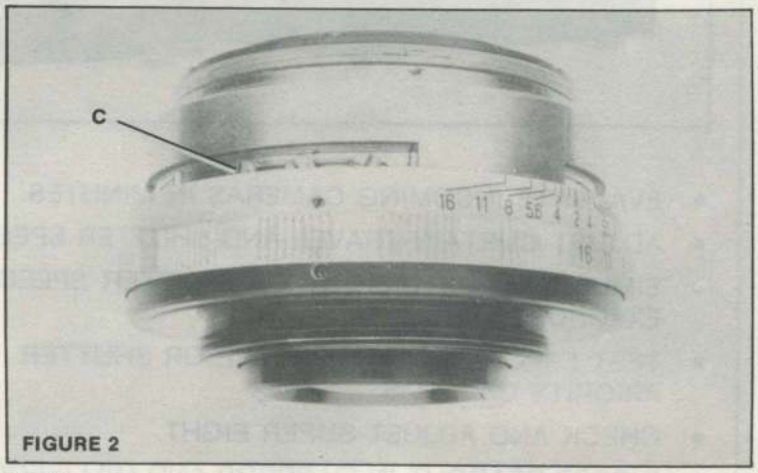


FIGURE 2

edge is 2.8mm from the bottom edge of the fixed helical ring, Fig. 3. The helical-guide slots should now be between the screw holes for the helical guides. If not, change the starting thread of the inner helical ring.

4. Replace the helical guides. Adjust the positions of the helical guides so that the focusing action feels smooth and even throughout the rotation of the brass helical ring.
5. Reassemble the rear mount assembly and the lens groups. Adjust the position of the focus-ring stop lug for best infinity focus. Replace the focus ring and adjust its position so that the infinity calibration aligns with the index when the brass helical ring is against the focus-ring stop lug.

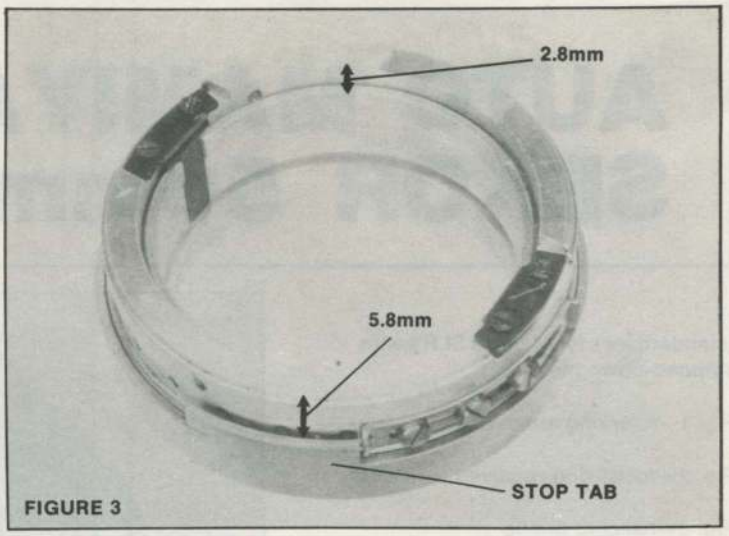
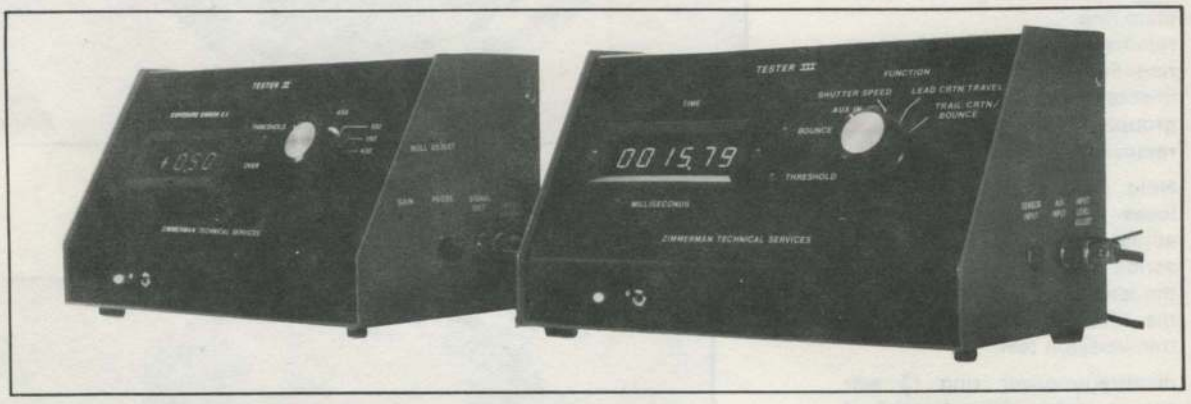


FIGURE 3


# ZTS TESTER II and ZTS TESTER III

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